

A SYSTEM, METHOD AND DEVICE FOR MANAGING GOLF HANDICAP DATA

Field of the invention

5 The present invention relates to the field of golf, and more particular a system, method and device for handling handicap-qualifying scores from individual players.

Technical background

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In golf, the players have to keep a detailed track of their progress through their game, registering how many attempts on hitting the ball is required for them to complete a hole. These scores are part of a detailed player rating
15 system, where the player level is reflected through a rating called handicap. As the player improves, so does their handicap after each qualifying round.

As there are many factors behind keeping a golf score, the
20 players use scorecards with more or less advanced tables for calculation and registration of scores. In many places these scorecards are made on paper, and the players keep track of the scores by filling them in with a pencil. After the game the scores are used for a calculation of handicap
25 and approved by play partner, golf club or tournament committee, depending on the circumstances.

Keeping track of play details is also a significant part of golf culture, where score registration is regulated by many
30 rules sometimes imposing strict procedures for how to fill out and complete a scorecard.

For a round of golf to be handicap-qualifying, the rules today demand that two players verify each others scores
35 made on one scorecard. Often two separate scorecards are used, where one players fills out a scorecard for the flight (up to four players), and a second fills out the second scorecard in parallel, for later cross-check. Thus

at least two players are required. After the game is completed the scores are controlled, and the controlling player enters the new adjusted handicap and signs the handicap-card belonging to the first player, and vice versa.

In tournament play the rules are even stricter: two scorecards per flight are required. Before play, both scorecards have to be signed by both players keeping record, and after the game these scorecards are handed in to the tournament committee, where they are compared before results and adjusted handicap is calculated.

For the results of the play to be accepted and new handicaps calculated, the results coming from the scorecards must be identical. This creates problems in a solution where two electronic scorecards are used, as there is no way the two active units can automatically verify input against each other during the game. If a mismatch occurs, and the players do not spot this by themselves as they record the results, the error is only detected after the 18 holes have been completed. The players then have to remember the game details in order to correct the error, which is difficult.

Today, there are a number of different administration and database solutions storing golf player information, including personal details, membership payment status and official handicap. The official handicap is per today in most countries adjusted once a year, through a painstaking process not deprived of reporting or computing mistakes where the clubs themselves through their handicap committee manually update their player's official handicap by typing it from the member's cards into a web-interface, to register and issue an updated card.

Prior art

In EP 0840639 B1, there is disclosed an electronic golf score recording system catering for the individual player, allowing him to track various scores - among which handicap - on a personally-owned electronic handheld, and update the club database with data recorded during play. This system eases the personal handicap recording and transfer to the golf club PC, but it is focussed on the individual player requirements, and does not address the specific issues of data management quality and integrity during tournament or handicap-qualifying rounds, and the further management of handicap-data during and after the game except through the simple synchronisation with the club PC at the end of the game. This patent says that the database used in connection with the "personal performance system" (the handheld device) is specific to one golf club/course, and does not use a database that is not specific to one golf club/course, or a national (or international) database covering a wide range of different clubs/courses.

Several patents and patent applications, among which US 6,062,991, WO 09607974 A1, WO 98/44998, EP 1072292 A2, attempt to ease communication between the remote or portable terminal and the golf club PC. But they do not address in a new and satisfactory manner the handicap-data quality and integrity management during and after handicap-qualifying games.

WO 9607974 A1 applies to solve the process of updating an individual handicap index card thanks to a contact less smartcard communicating with radio waves. This helps the travelling individual player bearing with him own data, but those are not certified, and with no information on latest updates.

In WO 09947216 A1, there is disclosed a solution where the golf PC is connected to other golf club PCs, for the club

PC to be able to access data on other clubs or home PCs, and vice-versa. The club PC may be connected to a golf association handicap database, itself being possibly in synchronisation with national or international databases.

5 But it does not handle handicap-data quality and integrity because data received in the golf club PC are not verified. Also the data is stored first in the club house PC, and not on the terminal on the course. This means that the critical communication between the terminal on the course and the
10 rest of the system is not backed-up by storage in the field unit.

In WO9607974 A1, there is mentioned that the golf club PC may be connected to a computer network or a database
15 through modem, cable or satellite, and that may allow all sorts of programming and information display, such as golfers playing on different club courses may communicate, but no issue on handicap-data quality and integrity are addressed. The central mainframe computer for the golf
20 association has several handicap computing, updating and normalising capabilities so as to issue monthly handicap updates to local clubs ensuring those data to be updated at the player level. As for WO 09947216 A1 there are no particular means for ensuring handicap data quality and
25 back-up during play.

In WO 0197925 A2, there is mentioned a database common to several golf clubs, acting as a central repository for handicap and other data. As for WO 09947216 A1 there are no
30 particular means for ensuring handicap data quality and back-up during play.

Summary of the invention

35 It is an object of the present invention to simplify handling of handicap score data.

It is another object of the invention to provide a system that guarantees the integrity and quality of handicap score data, and thus promotes fair play.

- 5 Another object of the invention is to provide a handheld device for registering golf score data which is fitted for outdoor use.

- Another object of the invention to handle handicap data for
10 players playing away from their club, e.g. when visiting a club abroad.

- Still another object is to provide a system enabling
conditioning access to popular golf clubs based on a
15 handicap criterion.

- These objects are achieved in a system and method as claimed in the appended patent claims. According to a first aspect, the invention comprises a system for managing
20 handicap data during a game of golf, said system including: a golf club information system with access to information regarding the identity of individual golf players, handicap information for each registered golf player, and golf course information,
25 first and second electronic means for storing and processing scores during said game, each of said first and second electronic means being adapted to fetch identity and handicap information for at least one player, as well as golf course information from
30 said golf club information system before a game session commences,
each of said first and second electronic means being adapted to receive score data for said player(s) during the game session,
35 said first and second electronic means being adapted to exchange the score data, compare the data entered and verify the correctness of said data,

and wireless communication means for transferring the verified score data to the golf club information system, said golf club information system being adapted to compute an updated handicap value for said player(s) from the
5 verified score data and store said updated handicap value.

According to a second aspect, the invention comprises a system for managing handicap data during a game of golf, said system including:

10 a golf club information system with access to information regarding the identity of individual golf players, handicap information for each registered golf player, and golf course information,
first and second portable electronic means for storing
15 and processing scores during said game,
each of said first and second electronic means being adapted to fetch identity and handicap information for at least one player, as well as golf course information from said golf club information system before a game session
20 commences,
said first and second electronic means being adapted to receive score data for said player(s) during the game session,
said first and second electronic means being adapted to
25 transfer score data to the golf club information system by wireless means during the game session, the golf club information system being adapted to compare the data entered, verify the correctness of said data, compute an updated handicap value for said player(s) and return the
30 updated handicap value to the respective electronic means, whereby said first and second electronic means will receive updated handicap values during the game.

According to a third aspect, the invention comprises a
35 method for managing handicap data during a game of golf, said method including the following steps:
loading handicap and golf course information for at least one player into a first portable electronic scorecard means

from a golf club information system before a game session commences,

loading handicap information for said player(s) into a second portable electronic scorecard means from said golf club information system before said game session commences,
5 entering score data for said player(s) into the first electronic means during the game session,
entering score data for said player(s) into the second electronic means during the game session,
10 transmitting the score data entered into the first unit to the second unit,
comparing the data entered into the first unit with the data entered into the second unit,
verifying the correctness of said data,
15 transferring the verified score data to the golf club information system,
computing an updated handicap value from the verified score data, and
storing said updated handicap value.

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According to a fourth aspect, the invention comprises a method for managing handicap data during a game of golf, said method including the following steps:

loading handicap and golf course information for at least one player into a first portable electronic scorecard means from a golf club information system before a game session commences,

loading handicap information for said player(s) into a second portable electronic scorecard means from said golf club information system before said game session commences,
25 entering score data for the player(s) into the first electronic means during the game session,
entering score data for the player(s) during the game session,
30

35 transmitting the entered score data from the first electronic means to the golf club information system by wireless means during the game session,
transmitting the entered score data from the second elec-

tronic means to the golf club information system by wire-
less means during the game session,
comparing the data entered into the first unit with the
data entered into the second unit,
5 verifying the correctness of said data,
computing an updated handicap value for the player(s),
storing said updated handicap value, and
returning the updated handicap value to the respective
electronic means during the game session, whereby said
10 first and second electronic means will receive updated
handicap values during the game.

According to a fifth aspect, the invention comprises a
device for managing handicap data during a game of golf,
15 including a Central Processing Unit, a memory, a user
interface, external communication means, said memory being
adapted to receive and store golf score data for at least
one player, means for synchronizing the data stored in said
memory with data stored in other corresponding units.

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Further advantageous embodiments of the invention are
covered by the following dependent claims.

Brief description of the drawings

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The invention will now be described in detail in reference
to the appended drawings, in which:

Fig. 1 shows the appearance of an electronic scorecard unit
30 according to the present invention,

Fig. 2 is a schematic diagram showing the functional blocks
of the unit in Fig. 1,

35 Fig. 3 illustrates the three operation modes of the unit
shown in Fig. 1,

Fig. 4 is a schematic diagram illustrating a first embodiment of the synchronisation mechanism used in the invention,

5 Fig. 5 is a corresponding diagram showing another way of synchronising the electronic scorecard units,

Fig. 6 is illustrating the database system used in the invention.

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Detailed description of the invention

System overview

15 The invention form a system where paper based scorecards and manual registration of golf play data is substituted with electronic handheld scorecards and means for automatically gather and organize the data in a central database for future access and reference. All functions for
20 entering score information lies in a handheld unit containing details on players and the golf course, plus the necessary means for receiving golf play data, storing them in score tables and calculating resulting points and handicap adjustments.

25

The system comprises three main parts:

1: A handheld unit with scorecard functionality.

30 2: A golf club information system comprising a golf club server that can be accessed from a terminal at the club house. The handheld units can be stored near said terminal; configured by the terminal before game and emptied of play details after game through a wireless connection. This
35 terminal provides the players with necessary functions for entering player details and choosing between the different options needed for setting up a game. There are also functions for displaying details after the game is

completed, along with options for paper printouts. After play, the terminal transmits the data to a database, where the players' profiles are updated.

- 5 3: A database where a profile is kept for all players using the system. The database provides necessary data for configuration of a new game, and stores resulting details after the game is completed. Different parts of the information on each profile can be accessed by the players,
10 golf clubs and other central groups or institutions depending on level of access.

For the players, the system is used in the following way: Before the game, a "flight" is established. The flight is a
15 group of active golf players sharing the same hole as they play along. The players then choose a scorecard unit for their game from a holder located at the terminal, or bring with them their personal scorecard units. Then, the players use their personal ID means to download necessary personal
20 information into the terminal, and set up their game individually based on desired play mode and level. After all active players in the flight have set up their game a scorecard unit is wirelessly configured with the data, and the unit is ready for play. In many cases, for example in a
25 tournament, the flight will require a second unit with the exact same configuration. This unit is called a "marker", and play data is recorded in parallel on these units to ensure that the data entered is correct. If a marker unit is required then the players activate this option on the
30 terminal and a second unit is configured before the flight departs.

During the game, the players use a simple graphic interface to choose player profile, hole and then enter the number of
35 strokes made on that hole. The unit makes a calculation of points based on the results and after all holes are completed the sum of these points will together with adjustment rules give a new adjusted handicap for the

player. All details are displayed on the unit through summaries. If the flight uses a second unit, a marker, the data entered on the units will be verified against each other, so that the players are forced to correct mistakes
5 in registration immediately.

After the game is finished, the data is retrieved from the unit or units and displayed on the terminal upon demand. The unit is also replaced in a holder located at the
10 terminal. From the terminal the players may view the results and make a paper printout before the results are stored in the central database.

Along with the play details, the current handicap stored on
15 the database is updated, and may provide an "official" handicap, being a handicap that counts as genuine if the players should visit clubs or courses not using the system.

The other details on the players profile can be accessed
20 through a web interface using standard access control, where the player or other authorized parties can view play history, performance development over time and various statistics.

25 Electronic scorecard unit

Fig. 1 shows an embodiment of an electronic scorecard unit according to the present invention. This unit includes a display 1.1 and a keypad 1.2 for entering data and choosing
30 between the available operation modes. The scorecard unit is housed in a ruggedized encapsulation 1.3, which is watertight and suited for outdoor use even in a wet climate.

35 Fig. 2 shows the principal functional blocks of a dedicated scorecard unit, including a CPU 2.1, a RAM 2.2 storing programs and data, communication means 2.3, a user interface 2.4, and an optional GPS receiver 2.5.

The communication means 2.3 can be based on IR, Bluetooth, WLAN or any other custom short-range radio frequency communication system, e.g. operating in the 430 MHz band.

5 Presently, the user interface includes a conventional display screen and a keyboard. Other embodiments of the scorecard unit can rely on other interfaces, e.g. a touch sensitive screen, on which the user can input data with a stylus/pen, or a voice recognition unit. In addition,
10 biometrical recognition means can be incorporated in the scorecard reader, e.g. a fingerprint reader, for authenticating the identity of the user.

Optionally, the electronic scorecard unit may include a GPS
15 receiver 2.5. A map of the golf course can then be loaded into the scorecard unit; showing the actual position of the flight on the green, the position of the holes/starting points, the distance and direction to the next hole and so on. In addition, the position of the flight may be
20 transmitted to the terminal/golf club server. The golf club server can then follow the progression of the game and decide when another game may start on the same course.

The GPS receiver 2.5 is only an example of a feasible way
25 of determining the position of the scorecard unit. However, the position may be obtained by any method available. In its most simple embodiment, the position may be inferred by the golf club server from the data entered into the scorecard unit, i.e. when the score data for a certain hole
30 is entered, the flight is probably at that hole leaving for the next start position.

The scorecard unit can be adapted to hold and register personal score data for one player only. Alternatively, the
35 unit can be adapted to hold data for several players concurrently; the players shifting between the personal data sets by touching a key, or by touching the fingerprint

reader. Synchronisation between the data entered by each player can then be performed internally in the unit.

Fig. 3 shows screen shots of three different operation
5 modes for the dedicated scorecard unit of Fig. 1. The
information screen at A shows the data loaded from the
database, i.e. the identity of each player and the official
handicap. Also shown is the number of additional strokes
available for each player, on this particular course. In
10 this case, the flight consists of four players. The screen
for entering data for one of the players in the flight is
shown at B. The person entering the data may shift between
the various players' screens by depressing the appropriate
button at the left hand side of the scorecard unit. The
15 summary screen C shows the results obtained by one of the
players so far in the game. Again, the summary screens for
other players may be retrieved by pressing the appropriate
button on the left.

20 At the present state of the art, it is preferred to
implement the invention using dedicated electronic
scorecard units, as described above. Then, we can be sure
that all participants in a game will possess a fully
functional unit.

25 However, it is also possibly to implement the scorecard
unit on a small handheld computer, like a PDA, a play
terminal, an advanced multifunctional mobile phone or a so-
called smartphone. Such units will possess all interfaces
30 needed to work as a scorecard, and can obtain the scorecard
functionality either from installed software, or by loading
an application from the Web, e.g. a Java application.
However, presently PDAs or mobile phones with the necessary
capabilities are not commonly owned by all players, as
35 these units have not yet reached a mature technical
development and standardisation of features. At a later
stage, when such devices are in common use, we foresee that

the dedicated units will be replaced with such personal devices.

5 In the future, we can also foresee a further development
towards more advanced terminals, e.g. implemented on
electronic paper, or as a fourth generation cellular phone
without a conventional screen; the image being projected on
the retina. Electronic paper as such is e.g. described in
US patent application 2003/0020701, while retinal
10 projection is described in US patent 6560028 and US patent
5813990.

Wireless communication network

15 As mentioned above, each scorecard unit includes a short-
range communication transceiver and/or a long-range
communication unit. The communication equipment is used for
communication between the units of a flight, in order to
synchronise the data entered into the units by the players,
20 and to communicate the results to the golf club information
system. In the case of the units being of the dedicated
type, short-range communication systems are preferred,
based on IR, Bluetooth, WLAN or any other custom radio
frequency wireless communication system. In order to avoid
25 interferences between two nearby flights, e.g. when
crossing paths, the communication signals must be locked to
specific channels or encrypted, according to the system
used. When a hole is completed, the score data are entered
into the units by the players. Then, the scorecard units
30 will synchronise, as explained in detail below, by
communication over the short-range link. If the units
agree, the verified score is transmitted to the terminal in
the club house. In order to extend the area of coverage, a
number of base station units may be scattered across the
35 golf course. These units are connected with cable to the
system in the club house. The base station units could be
passive, listening only to the signals emitted by the
scorecard units. A measure of redundancy could be

incorporated into the system; the scorecard units could repeat all results when completing a hole; transmitting a signal packet containing the results of the game up until then. However, it is rather preferred that the club system
5 transmits an acknowledge signal when a result has been received. The base stations in the field could of course be dispensed with. Then, the scorecard units will have to store the results until the flight returns and come within signal coverage of the club house. In addition, the
10 scorecard units include a hardwired serial interface, in case the wireless system should fail completely.

In case of the scorecard units being PDAs/mobile phones running a scorecard application, the units can synchronise
15 via a short-range communication system, e.g. IR or Bluetooth, and the results being transmitted to the golf club information system via the normal public mobile communication system supported by the units, e.g. GSM, GPRS, UMTS, or other similar systems. However, it is then
20 possible to let the golf club information system perform the synchronisation, the units transmitting the number of strokes entered by the users to the golf club information system, receiving an acknowledge signal if everything is in order. If the radio coverage is satisfactory, such a scheme
25 may be used in the dedicated units as well, lessening the need for processing power in the units.

Synchronisation

30 Figure 4 shows a typical scenario during golf play with usage of multiple units. The units have all been configured during check in, as shown in figure 3.

Two or more units 6.1, 6.2 are used by a flight, i.e. a
35 team of players sharing the same hole. Two or more players, or helpers, such as caddies, operate the units during play, and operation is not limited to a certain individual.

During play scorecard data (such as number of strokes per hole, type of stroke) is registered in the units 6.1, 6.2. The units 6.1, 6.2 will attempt to compare the data by synchronizing and then report any discrepancies, e.g. on the display or as an audio or light alarm, or a data entry or message to an external device, such as a part of a tournament administration system. The discrepancies must be corrected on one or both units and verified on both.

10 Synchronization method A in figure 4 uses a wireless network 6.3 where registered scorecard data is transmitted for synchronization e.g. after each completed hole. The data is relayed through the golf club server 6.4, which can keep a back-up copy. The golf club server 6.4 compares the
15 scorecard data received from the units 6.1, 6.2, and then triggers the correction procedure in the units 6.1, 6.2. If data matches, the units 6.1, 6.2 may inform the users that data entry for that hole is completed, and the scorecard data is marked as accepted and verified.

20

In systems using synchronization method B as shown in Fig. 5, the units 6.1, 6.2 will synchronize internally without involving the server, by exchanging signals on a connection linking the two units 6.1, 6.2. When any mismatch has been
25 corrected and the units are synchronized, the result is transmitted to the golf club server over a wireless link (not shown).

If the flight uses only one unit, by choice or due to unit
30 malfunction, there is no possibility to synchronize and verify data with a second unit. The scorecard data from the unit 6.1, 6.2 will be stored in the golf club server 6.4 as previously described. Whenever the flight again operates a second unit 6.1, 6.2, the system works as previously
35 described, and the mismatch between the units is corrected in accordance with the described procedure.

Figure 6 shows the entire system where the arrows indicate data flow during check in and check out of a flight. The flight will during play use one ore more scorecard units of the dedicated type 6.1 or mobile phone /PDA/Smartphone 6.2.

5 Unit 6.1 is typically a dedicated unit for golf play, where the authorization of the users is done by using an authorization source 6.1.b such as a smartcard (credit card), Mobile phone with pin code, password or biometrical methods. The authorization may involve resources available
10 over the network 6.3. The authorization source 6.1.b may store handicap and player info; this can be used if data cannot be retrieved from preferred sources, such as a database 6.5.

Unit 6.2 is a non-dedicated unit, e.g. a mobile phone or a
15 generic device such as a PDA or game console. The scorecard functionality comes from a data program that may be preinstalled or downloaded from the network 6.3 during check in. The programme may be coded using standard programming languages, such as Java. The identification in
20 the unit 6.2 is either based on the units own method of identification or a method using an external unit connected to the network e.g. in the golf club server 6.4 or the database 6.5. The unit 6.2 may also store data in the same way as a separate authorization source 6.1.b.

25 As the score card unit 6.1 will have a design optimised for golf play and a weatherproof construction, users having a Mobile phone 6.2 may prefer to use a dedicated unit 6.1 and optionally copy data from the system to their Mobile phone 6.2, during or after play, e.g. as part of the check out
30 procedure.

A unit 6.1, 6.2 is not limited to one instance per physical device, as it is implemented as a process/application, and thus all the units used by a flight may be operated on one
35 and the same physical device.

Golf club information system

The information system may include a terminal placed in the club house. The terminal is connected to a golf club server 6.4. The golf club server 6.4 is typically owned by the golf club. It may be implemented using standard server technology on e.g. a PC. The golf club server 6.4 runs software that give the players configuration options for the scorecard units 6.1, 6.2, possibility to register new players and may control calculation and payment of e.g. green fees or admission fees. Based on knowledge of the players' handicap, play history and conduct the users may be presented with options for registering to tournaments or events not limited to the local golf club, as the server 6.4 gets information from other parts of the system 6.6, 6.9. Golfers may also be denied access to play, based on the same principles.

The golf club server 6.4 may, as seen in figure 6, have knowledge of all flights currently on the green. It may also have statistics based on handicap and play history and thus it can be used by the club administration to supervise the flights and better calculate when a new flight can begin.

25 Database

The central database 6.5 is where handicap data for a number of clubs, or all clubs in a country or region, or all golf clubs with the inventive system, or all clubs in the world is stored. Every golf player has a unique identification in the system. All play information registered in the system is stored. It may include the adjusted handicap resulting from the last play, and this adjusted handicap can be used by clubs as the current, official handicap.

The golf club's administration system 6.6 is a separate computer program that serves all administrative purposes

for the golf club. It may be responsible for providing official handicap during check-in and is synchronized with the system's central database 6.5, which will normally be the source for official handicap data during check in.

5 The web interface 6.7 is a function that provides player statistics on a web page that can be part of any personalized golf information system and may be accessed from a web terminal 6.8, e.g. a home PC. Other, official bodies 6.9 can also gain access to the data.

10

A set of golf clubs may be organized in a national, international, league-based or union-based system 6.9 with a common administrations system, that may use the handicap and play data from the central database 6.5 for e.g.

15 statistics and basis for incentives.

A flight configures a play during check in. The data for setting up the flight is player names and official handicap, and may also include other relevant information
 20 such as commercials or tournament invitations based on handicap. The data is retrieved from the golf club administration program 6.6 via the golf club server 6.4. If no contact between the club server 6.4 and the administration system 6.6 is possible, e.g. due to network
 25 malfunction, then player data and handicap is retrieved from the authorization source 6.1.b or 6.2, as previously described.

Having a central regional, national or international
 30 database opens up a possibility for players normally using clubs with the inventive system to update the database 6.5 with play information from plays made at golf courses without the inventive system. The update of information is done in the club immediately after the play is completed,
 35 and is done on a computer with an internet connection and a web browser. This is all the more important as more and more, access to popular clubs is conditioned by the handicap of the player, be he/her an applying member or a

guest player. It is thus critical to have the most recent handicap updated at once. Through a web-based interface the player logs on using his login and password (given at first registration) and through an option for "manual update"

5 adds information on the completed golf play, and a new handicap is calculated by the interface. For the update to be accepted and the adjusted handicap declared official, a representative from the golf club has to certify the update by typing in his password. The golf club receives this

10 password by obtaining a authorization beforehand. This authorization is given on request by a club after a standard check. An update cannot be made by the club without a player password and only to the player's profile, and if the player reveals his password he is responsible

15 for future tampering to his profile done by the club.

Having a central regional, national or international database is also required when a player plays on several golf clubs/courses (national or international) using the

20 inventive system, and these different results are to be updated to the same profile. Having an individual database for each club is not an optimal solution, as all databases has to contain the same information, and would require unnecessary network traffic between them.

25 The primary function of the national/international database is to provide accurate and dynamically adjusted handicap to the central member databases. In countries/areas where such databases do not exist, the national/international database

30 may assume the role of official handicap source for the players there.

From the above, it can be inferred that the central database can be realised either as a dedicated database or

35 as a distributed base. In the later case, all the data for the individual players are stored in the local database of his/hers golf club. The central database is a server with pointers to the local bases. When a request for information

on a particular player arrives at the central server, the data is retrieved from the local database. In the opposite case, all the data are stored in a dedicated central base. Then, there is no need for a local database, unless the
5 club prefers a local copy for back up or redundancy purposes, as all data can be retrieved from the central source.

The present inventive system has an additional advantage as
10 it can be fully automated, e.g. if someone wants to start a game of golf early in the morning, before the staff manning the club house has arrived, the participants can log in to the system through the golf club's Web page, load their personal handicap data into the electronic scorecards and
15 begin playing. All practical issues as to managing handicap data, reservation of the green for the flight, billing issues etc. will then be handled by the club information system.